CLAIMS

What is claimed is:

1.   A method of handling document operation requests, the method comprising:

receiving a document operation request;

determining whether the document operation requires one or more collection elements of the document to be in memory;

determining whether each of the one or more required collection elements is within a collection partition in the memory;

loading each of the one or more required collection elements not within a collection partition in the memory into a collection partition in the memory; and

executing the document operation.

2.   The method of claim 1, wherein at least one of the one or more required collection elements not within a collection partition in the memory is loaded into a new collection partition in the memory.

3.   The method of claim 1, wherein each collection partition in the memory does not exceed a threshold size.

4.   The method of claim 3, wherein the threshold size is a factor of the memory size.

5.   The method of claim 3, wherein the threshold size is user defined.

6.   The method of claim 1, wherein the memory is fixed in size.

7.   The method of claim 1, wherein the one or more required collection elements are part of one collection.

8.   The method of claim 1, wherein a collection partition is a disjoint subset of a collection in the document.

9.   The method of claim 1, wherein a collection partition in the memory comprises collection elements from one collection.

10.   The method of claim 1, wherein a collection partition is a swap unit.

11.   The method of claim 10, wherein a swap unit is a unit in which data is read from and/or written to a data storage device.

12.   The method of claim 1, further comprising:

determining whether the memory is full;

selecting one or more collection partitions in the memory for removal when the memory is full;

propagating one or more changes in each of the one or more selected collection partitions to one or more data storage devices storing one or more collection elements in the selected collection partition;

removing the one or more selected collection partitions from the memory; and

updating one or more collection partitions that remain in the memory.

13.   The method of claim 12, wherein selecting one or more collection partitions in the memory for removal comprises:

selecting one or more least recently used collection partitions in the memory for removal.

14.   The method of claim 12, wherein the one or more selected collection partitions do not contain any of the one or more required collection elements.

15.   The method of claim 12, wherein loading each of the one or more required collection elements not within a collection partition in the memory comprises:

creating a new collection partition in the memory; and

loading at least one of the one or more required collection elements into a collection partition in the memory.

16.   The method of claim 15, wherein the at least one required collection element is loaded into the new collection partition.

17.   The method of claim 12, wherein updating one or more collection partitions comprises:

updating metadata corresponding to the one or more collection partitions.

18.   The method of claim 1, wherein the document operation is a read, update, delete, insert, or create operation.

19.   The method of claim 1, further comprising:

propagating one or more changes in at least one of the collection partitions in the memory to one or more data storage devices storing one or more collection elements in the at least one collection partition; and

updating one or more collection partitions in the memory.

20.   The method of claim 1, wherein the document is an XML document.

21.   The method of claim 1 in which the number of elements read into a partition are controlled by a parameter which can be user defined.

22.   The method of claim 1 in which the number of elements read into a partition are controlled as a percentage of the total memory as well.